Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Hobbs

FORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018

SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on page 2

5. Lease Serial No.
NMNM02965A

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.

1. Type of Well
☐ Oil Well ☒ Gas Well ☐ Other

8. Well Name and No.
~~PEPPER RIDGE 15 22 W1AH FED COM 2H~~
Salado Draw 10 W0PA Federal 3H

2. Name of Operator
MEWBOURNE OIL COMPANY (14744)
Contact: JACKIE LATHAN
E-Mail: jlathan@mewbourne.com

9. API Well No.
30-025-43577-00-X1

3a. Address
HOBBS, NM 88241

3b. Phone No. (include area code)
Ph: 575-393-5905

10. Field and Pool or Exploratory Area
RED HILLS

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 15 T26S R33E NENE 185FNL 580FEL

11. County or Parish, State
LEA COUNTY, NM

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other Change to Original APD
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Mewbourne Oil Company has an approved APD for the above well. Mewbourne would like to make the following changes:

1 - Change name to Salado Draw 10 W0PA Federal #3H
2 - Change surface location to 250' FNL & 580' FEL, Sec 15 T26S R33E
3 - Change TVD to 12,343'

NEW PROD CODE 31777J

Please see attachments for updated C-102 and drilling plans.

apply original stips that was with approv APD

Engineering OK - Z Surface OK - BW

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #370498 verified by the BLM Well Information System
For MEWBOURNE OIL COMPANY, sent to the Hobbs
Committed to AFMSS for processing by DEBORAH MCKINNEY on 04/11/2017 (17DLM0838SE)

Name *(Printed/Typed)* ANDREW TAYLOR Title ENGINEER

Signature (Electronic Submission) Date 03/21/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By Cody A. Layton Title AFM - Lands & Minerals Date 05/09/17

Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Office CFO

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

KZ

Mewbourne Oil Company, Salado Draw 10 W0PA Fed Com #3H
Sec 15, T26S, R33E
SL: 250' FNL & 580' FEL, Sec 15
BHL: 330' FNL & 990' FEL, Sec 10

1. Geologic Formations

TVD of target	12343'	Pilot hole depth	NA
MD at TD:	17450'	Deepest expected fresh water:	125'

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface		
Rustler	951	Water	
Top Salt	1296		
Castile	3227		
Base Salt	4796		
Lamar	5038	Oil/Gas	
Bell Canyon		Oil/Gas	
Cherry Canyon	6187	Oil/Gas	
Manzanita Marker	6308		
Brushy Canyon	7683	Oil/Gas	
Bone Spring	9198	Oil/Gas	
1st Bone Spring Sand	10140		
2nd Bone Spring Sand	10685		
3rd Bone Spring Sand	10785		
Abo			
Wolfcamp	12225	Target Zone	
Devonian			
Fusselman			
Ellenburger			
Granite Wash			

*H2S, water flows, loss of circulation, abnormal pressures, etc.

Mewbourne Oil Company, Salado Draw 10 W0PA Fed Com #3H
Sec 15, T26S, R33E
SL: 250' FNL & 580' FEL, Sec 15
BHL: 330' FNL & 990' FEL, Sec 10

2. Casing Program

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Jt Tension	SF Body Tension
17.5"	0'	990'	13.375"	48	H40	STC	1.50	3.36	6.78	11.38
12.25"	0'	3453'	9.625"	36	J55	LTC	1.13	1.96	2.49	4.54
12.25"	3453'	4393'	9.625"	40	J55	LTC	1.13	1.73	8.98	16.75
12.25"	4393'	4900'	9.625"	40	N80	LTC	1.21	2.26	36.35	45.18
8.75"	0'	12500'	7"	26	HCP110	LTC	1.27	1.63	2.01	2.55
6.125"	11770'	17450'	4.5"	13.5	P110	LTC	1.28	1.49	4.41	5.50
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h
Must have table for contingency casing

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Is casing API approved? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	Y
If yes, are there two strings cemented to surface?	Y
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

3. Cementing Program

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H_20 gal/ sk	500# Comp. Strength (hours)	Slurry Description
Surf.	530	12.5	2.12	11	10	Lead: Class C + Salt + Gel + Extender + LCM
	200	14.8	1.34	6.3	8	Tail: Class C + Retarder
Inter.	820	12.5	2.12	11	10	Lead: Class C + Salt + Gel + Extender + LCM
	200	14.8	1.34	6.3	8	Tail: Class C + Retarder
Prod. Stg 1	330	12.5	2.12	11	9	Lead: Class C + Gel + Retarder + Defoamer + Extender
	400	15.6	1.18	5.2	10	Tail: Class H + Retarder + Fluid Loss + Defoamer
ECP/DV Tool @ 6308'						
Prod. Stg 2	90	12.5	2.12	11	9	Lead: Class C + Gel + Retarder + Defoamer + Extender
	100	14.8	1.34	6.3	8	Tail: Class C + Retarder
Liner	235	11.2	2.97	17	16	Class C + Salt + Gel + Fluid Loss + Retarder + Dispersant + Defoamer + Anti-Settling Agent

A copy of cement test will be available on location at time of cement job providing pump times, compressive strengths, etc.

Casing String	TOC	% Excess
Surface	0'	100%
Intermediate	0'	25%
Production	4700'	25%
Liner	11770'	25%

4. Pressure Control Equipment

	Variance: None

BOP installed and tested before drilling which hole?	Size?	System Rated WP	Type	✓	Tested to:
12-1/4"	13-5/8"	10M	Annular	X	5000#
			Blind Ram	X	10000#
			Pipe Ram	X	
			Double Ram		
			Other*		

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

X	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
Y	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
N	Are anchors required by manufacturer?
Y	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. • Provide description here: See attached schematic.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0'	990'	Spud Mud	8.6-8.8	28-34	N/C
990'	4900'	Brine	10.0	28-34	N/C
4900'	11770'	Cut Brine	8.6-9.7	28-34	N/C
11770'	17450'	OBM	10.0-13.0	30-40	<10cc

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times. MW up to 13.0 ppg may be required for shale control. The highest mud weight needed to balance formation pressure is expected to be 12.0 ppg.

What will be used to monitor the loss or gain of fluid?	Pason/PVT/Visual Monitoring

6. Logging and Testing Procedures

Logging, Coring and Testing.	
X	Will run GR/CNL from KOP (11770') to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
	Coring? If yes, explain

Additional logs planned		Interval
X	Gamma Ray	11770' (KOP) to TD
	Density	
	CBL	
	Mud log	
	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	7702 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe. Lost circulation material/sweeps/mud scavengers in surface hole. Weighted mud for possible over-pressure in Wolfcamp formation.

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
	H2S is present
X	H2S Plan attached

8. Water & Waste Volumes

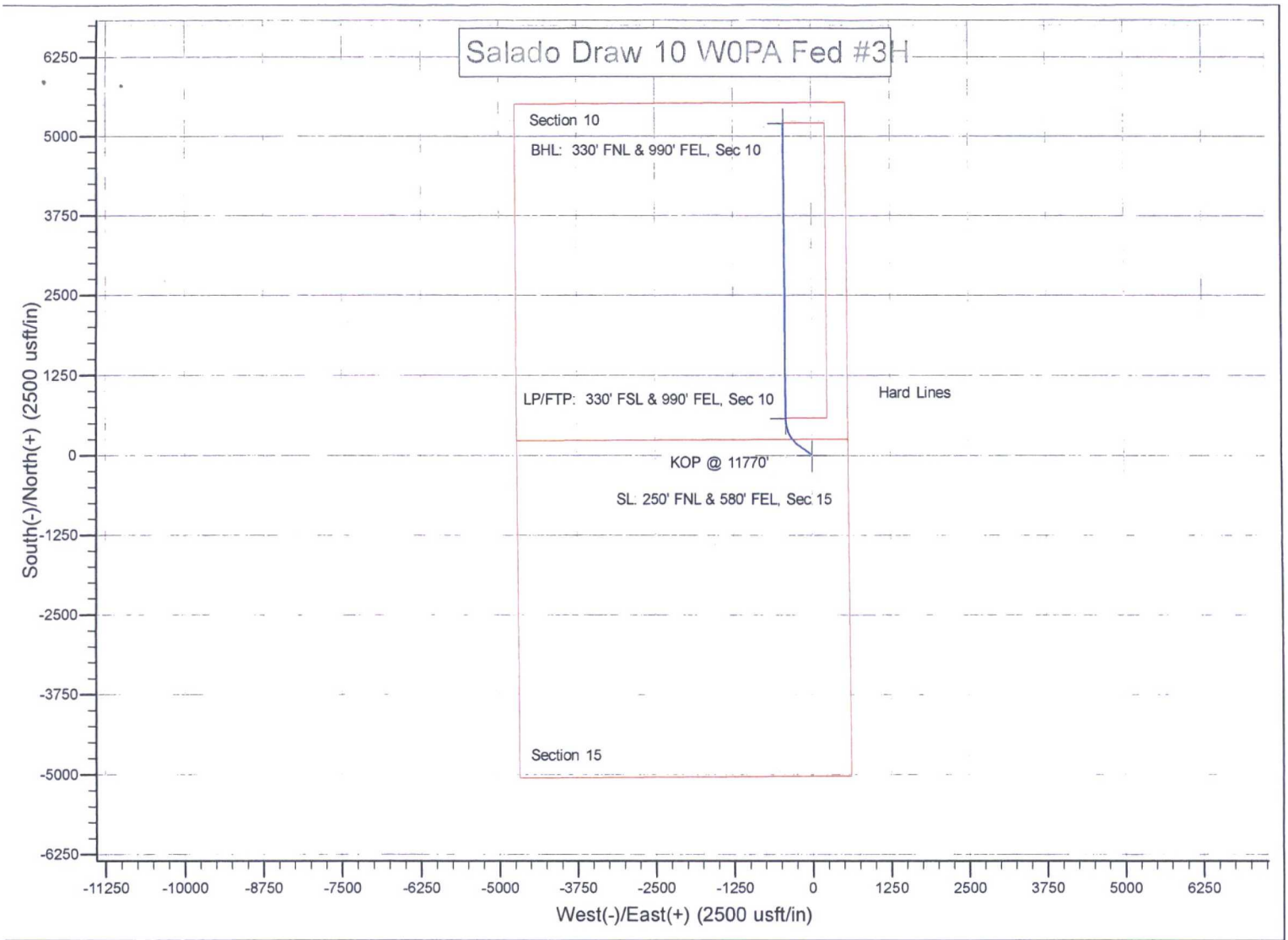
Fresh Water Required: 3575 bbl

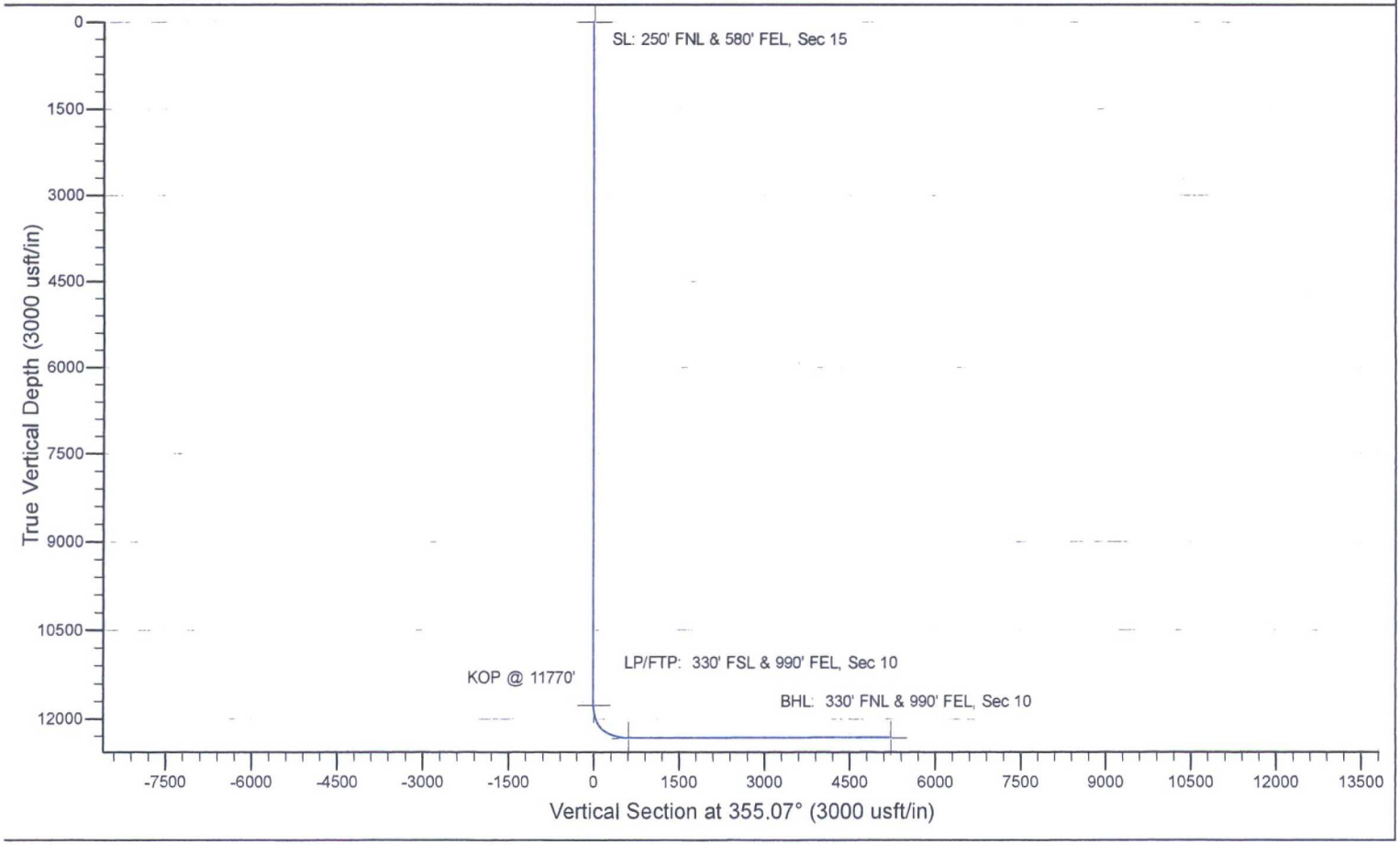
Waste Water: 3575 bbl
Waste Solids: 2575 bbl

9. Other facets of operation

Is this a walking operation? If yes, describe.
Will be pre-setting casing? If yes, describe.

Attachments
___ Directional Plan
___ Other, describe


Salado Draw 10 W0PA Fed #3H
Section 10
BHL: 330' FNL & 990' FEL, Sec 10
LP/FTP: 330' FSL & 990' FEL, Sec 10
Hard Lines
KOP @ 11770'
SL: 250' FNL & 580' FEL, Sec 15
Section 15
South(-)/North(+) (2500 usft/in)
West(-)/East(+) (2500 usft/in)
6250
5000
3750
2500
1250
0
-1250
-2500
-3750
-5000
-6250
-11250
-10000
-8750
-7500
-6250
-5000
-3750
-2500
-1250
0
1250
2500
3750
5000
6250


SL: 250' FNL & 580' FEL, Sec 15
KOP @ 11770'
LP/FTP: 330' FSL & 990' FEL, Sec 10
BHL: 330' FNL & 990' FEL, Sec 10
True Vertical Depth (3000 usft/in)
Vertical Section at 355.07° (3000 usft/in)
0
1500
3000
4500
6000
7500
9000
10500
12000
-7500
-6000
-4500
-3000
-1500
0
1500
3000
4500
6000
7500
9000
10500
12000
13500

Mewbourne Oil Company

Lea County, New Mexico
Salado Draw 10 W0PA Fed #3H
Sec 15, T26S, R33E
SL: 250' FNL & 580' FEL, Sec 15
BHL: 330' FNL & 990' FEL, Sec 10

Plan: Design #1

Standard Planning Report

21 March, 2017

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Salado Draw 10 W0PA Fed #3H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3353.0usft (Original Well Elev)
Project:	Lea County, New Mexico	**MD Reference:**	WELL @ 3353.0usft (Original Well Elev)
Site:	Salado Draw 10 W0PA Fed #3H	**North Reference:**	Grid
Well:	Sec 15, T26S, R33E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 330' FNL & 990' FEL, Sec 10		
Design:	Design #1		

Project Lea County, New Mexico

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site Salado Draw 10 W0PA Fed #3H

Site Position:		**Northing:**	382,758.00 usft	**Latitude:**	32° 2' 59.695 N
From:	Map	**Easting:**	741,754.00 usft	**Longitude:**	103° 33' 11.001 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.41 °

Well Sec 15, T26S, R33E

Well Position	**+N/-S**	0.0 usft	**Northing:**	382,758.00 usft	**Latitude:**	32° 2' 59.695 N
	+E/-W	0.0 usft	**Easting:**	741,754.00 usft	**Longitude:**	103° 33' 11.001 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	3,353.0 usft	**Ground Level:**	3,326.0 usft

Wellbore BHL: 330' FNL & 990' FEL, Sec 10

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/13/2017	6.86	59.88	47,940

Design Design #1

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.0
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.0	0.0	0.0	355.07	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
11,770.0	0.00	0.00	11,770.0	0.0	0.0	0.00	0.00	0.00	0.00	KOP @ 11770'
12,300.5	61.00	305.40	12,205.8	148.7	-209.2	11.50	11.50	0.00	305.40	
12,817.4	90.12	359.58	12,343.0	577.0	-414.0	11.47	5.63	10.48	70.59	LP/FTP: 330' FSL & !
17,436.5	90.12	359.58	12,333.0	5,196.0	-448.0	0.00	0.00	0.00	0.00	BHL: 330' FNL & 990

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Salado Draw 10 W0PA Fed #3H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3353.0usft (Original Well Elev)
Project:	Lea County, New Mexico	**MD Reference:**	WELL @ 3353.0usft (Original Well Elev)
Site:	Salado Draw 10 W0PA Fed #3H	**North Reference:**	Grid
Well:	Sec 15, T26S, R33E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 330' FNL & 990' FEL, Sec 10		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
SL: 250' FNL & 580' FEL, Sec 15									
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Salado Draw 10 W0PA Fed #3H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3353.0usft (Original Well Elev)
Project:	Lea County, New Mexico	**MD Reference:**	WELL @ 3353.0usft (Original Well Elev)
Site:	Salado Draw 10 W0PA Fed #3H	**North Reference:**	Grid
Well:	Sec 15, T26S, R33E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 330' FNL & 990' FEL, Sec 10		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00
8,100.0	0.00	0.00	8,100.0	0.0	0.0	0.0	0.00	0.00	0.00
8,200.0	0.00	0.00	8,200.0	0.0	0.0	0.0	0.00	0.00	0.00
8,300.0	0.00	0.00	8,300.0	0.0	0.0	0.0	0.00	0.00	0.00
8,400.0	0.00	0.00	8,400.0	0.0	0.0	0.0	0.00	0.00	0.00
8,500.0	0.00	0.00	8,500.0	0.0	0.0	0.0	0.00	0.00	0.00
8,600.0	0.00	0.00	8,600.0	0.0	0.0	0.0	0.00	0.00	0.00
8,700.0	0.00	0.00	8,700.0	0.0	0.0	0.0	0.00	0.00	0.00
8,800.0	0.00	0.00	8,800.0	0.0	0.0	0.0	0.00	0.00	0.00
8,900.0	0.00	0.00	8,900.0	0.0	0.0	0.0	0.00	0.00	0.00
9,000.0	0.00	0.00	9,000.0	0.0	0.0	0.0	0.00	0.00	0.00
9,100.0	0.00	0.00	9,100.0	0.0	0.0	0.0	0.00	0.00	0.00
9,200.0	0.00	0.00	9,200.0	0.0	0.0	0.0	0.00	0.00	0.00
9,300.0	0.00	0.00	9,300.0	0.0	0.0	0.0	0.00	0.00	0.00
9,400.0	0.00	0.00	9,400.0	0.0	0.0	0.0	0.00	0.00	0.00
9,500.0	0.00	0.00	9,500.0	0.0	0.0	0.0	0.00	0.00	0.00
9,600.0	0.00	0.00	9,600.0	0.0	0.0	0.0	0.00	0.00	0.00
9,700.0	0.00	0.00	9,700.0	0.0	0.0	0.0	0.00	0.00	0.00
9,800.0	0.00	0.00	9,800.0	0.0	0.0	0.0	0.00	0.00	0.00
9,900.0	0.00	0.00	9,900.0	0.0	0.0	0.0	0.00	0.00	0.00
10,000.0	0.00	0.00	10,000.0	0.0	0.0	0.0	0.00	0.00	0.00
10,100.0	0.00	0.00	10,100.0	0.0	0.0	0.0	0.00	0.00	0.00
10,200.0	0.00	0.00	10,200.0	0.0	0.0	0.0	0.00	0.00	0.00
10,300.0	0.00	0.00	10,300.0	0.0	0.0	0.0	0.00	0.00	0.00
10,400.0	0.00	0.00	10,400.0	0.0	0.0	0.0	0.00	0.00	0.00
10,500.0	0.00	0.00	10,500.0	0.0	0.0	0.0	0.00	0.00	0.00
10,600.0	0.00	0.00	10,600.0	0.0	0.0	0.0	0.00	0.00	0.00

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Salado Draw 10 W0PA Fed #3H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3353.0usft (Original Well Elev)
Project:	Lea County, New Mexico	**MD Reference:**	WELL @ 3353.0usft (Original Well Elev)
Site:	Salado Draw 10 W0PA Fed #3H	**North Reference:**	Grid
Well:	Sec 15, T26S, R33E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 330' FNL & 990' FEL, Sec 10		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,700.0	0.00	0.00	10,700.0	0.0	0.0	0.0	0.00	0.00	0.00
10,800.0	0.00	0.00	10,800.0	0.0	0.0	0.0	0.00	0.00	0.00
10,900.0	0.00	0.00	10,900.0	0.0	0.0	0.0	0.00	0.00	0.00
11,000.0	0.00	0.00	11,000.0	0.0	0.0	0.0	0.00	0.00	0.00
11,100.0	0.00	0.00	11,100.0	0.0	0.0	0.0	0.00	0.00	0.00
11,200.0	0.00	0.00	11,200.0	0.0	0.0	0.0	0.00	0.00	0.00
11,300.0	0.00	0.00	11,300.0	0.0	0.0	0.0	0.00	0.00	0.00
11,400.0	0.00	0.00	11,400.0	0.0	0.0	0.0	0.00	0.00	0.00
11,500.0	0.00	0.00	11,500.0	0.0	0.0	0.0	0.00	0.00	0.00
11,600.0	0.00	0.00	11,600.0	0.0	0.0	0.0	0.00	0.00	0.00
11,700.0	0.00	0.00	11,700.0	0.0	0.0	0.0	0.00	0.00	0.00
11,770.0	0.00	0.00	11,770.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP @ 11770'									
11,800.0	3.45	305.40	11,800.0	0.5	-0.7	0.6	11.50	11.50	0.00
11,900.0	14.95	305.40	11,898.5	9.8	-13.7	10.9	11.50	11.50	0.00
12,000.0	26.45	305.40	11,991.9	30.2	-42.5	33.7	11.50	11.50	0.00
12,100.0	37.95	305.40	12,076.4	61.0	-85.9	68.2	11.50	11.50	0.00
12,200.0	49.45	305.40	12,148.6	101.0	-142.1	112.8	11.50	11.50	0.00
12,300.0	60.95	305.40	12,205.6	148.5	-208.9	165.8	11.50	11.50	0.00
12,300.5	61.00	305.40	12,205.8	148.7	-209.2	166.1	11.50	11.50	0.00
12,400.0	65.31	317.25	12,250.9	207.3	-275.6	230.2	11.47	4.33	11.91
12,500.0	70.51	328.29	12,288.5	281.0	-331.4	308.4	11.47	5.20	11.04
12,600.0	76.33	338.61	12,317.1	366.6	-374.0	397.4	11.47	5.82	10.32
12,700.0	82.56	348.41	12,335.5	460.8	-401.8	493.6	11.47	6.23	9.80
12,800.0	89.00	357.93	12,342.9	559.6	-413.6	593.1	11.47	6.44	9.52
12,817.4	90.12	359.58	12,343.0	577.0	-414.0	610.4	11.47	6.48	9.46
LP/FTP: 330' FSL & 990' FEL, Sec 10									
12,900.0	90.12	359.58	12,342.8	659.6	-414.6	692.8	0.00	0.00	0.00
13,000.0	90.12	359.58	12,342.6	759.6	-415.3	792.5	0.00	0.00	0.00
13,100.0	90.12	359.58	12,342.4	859.6	-416.1	892.2	0.00	0.00	0.00
13,200.0	90.12	359.58	12,342.2	959.6	-416.8	991.9	0.00	0.00	0.00
13,300.0	90.12	359.58	12,342.0	1,059.6	-417.6	1,091.5	0.00	0.00	0.00
13,400.0	90.12	359.58	12,341.7	1,159.6	-418.3	1,191.2	0.00	0.00	0.00
13,500.0	90.12	359.58	12,341.5	1,259.6	-419.0	1,290.9	0.00	0.00	0.00
13,600.0	90.12	359.58	12,341.3	1,359.6	-419.8	1,390.6	0.00	0.00	0.00
13,700.0	90.12	359.58	12,341.1	1,459.6	-420.5	1,490.3	0.00	0.00	0.00
13,800.0	90.12	359.58	12,340.9	1,559.6	-421.2	1,590.0	0.00	0.00	0.00
13,900.0	90.12	359.58	12,340.7	1,659.6	-422.0	1,689.7	0.00	0.00	0.00
14,000.0	90.12	359.58	12,340.4	1,759.6	-422.7	1,789.4	0.00	0.00	0.00
14,100.0	90.12	359.58	12,340.2	1,859.6	-423.4	1,889.1	0.00	0.00	0.00
14,200.0	90.12	359.58	12,340.0	1,959.6	-424.2	1,988.8	0.00	0.00	0.00
14,300.0	90.12	359.58	12,339.8	2,059.6	-424.9	2,088.4	0.00	0.00	0.00
14,400.0	90.12	359.58	12,339.6	2,159.6	-425.6	2,188.1	0.00	0.00	0.00
14,500.0	90.12	359.58	12,339.4	2,259.6	-426.4	2,287.8	0.00	0.00	0.00
14,600.0	90.12	359.58	12,339.1	2,359.6	-427.1	2,387.5	0.00	0.00	0.00
14,700.0	90.12	359.58	12,338.9	2,459.5	-427.9	2,487.2	0.00	0.00	0.00
14,800.0	90.12	359.58	12,338.7	2,559.5	-428.6	2,586.9	0.00	0.00	0.00
14,900.0	90.12	359.58	12,338.5	2,659.5	-429.3	2,686.6	0.00	0.00	0.00
15,000.0	90.12	359.58	12,338.3	2,759.5	-430.1	2,786.3	0.00	0.00	0.00
15,100.0	90.12	359.58	12,338.1	2,859.5	-430.8	2,886.0	0.00	0.00	0.00
15,200.0	90.12	359.58	12,337.8	2,959.5	-431.5	2,985.7	0.00	0.00	0.00
15,300.0	90.12	359.58	12,337.6	3,059.5	-432.3	3,085.4	0.00	0.00	0.00
15,400.0	90.12	359.58	12,337.4	3,159.5	-433.0	3,185.0	0.00	0.00	0.00
15,500.0	90.12	359.58	12,337.2	3,259.5	-433.7	3,284.7	0.00	0.00	0.00

Database:	Hobbs	**Local Co-ordinate Reference:**	Site Salado Draw 10 W0PA Fed #3H
Company:	Mewbourne Oil Company	**TVD Reference:**	WELL @ 3353.0usft (Original Well Elev)
Project:	Lea County, New Mexico	**MD Reference:**	WELL @ 3353.0usft (Original Well Elev)
Site:	Salado Draw 10 W0PA Fed #3H	**North Reference:**	Grid
Well:	Sec 15, T26S, R33E	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	BHL: 330' FNL & 990' FEL, Sec 10		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
15,600.0	90.12	359.58	12,337.0	3,359.5	-434.5	3,384.4	0.00	0.00	0.00
15,700.0	90.12	359.58	12,336.8	3,459.5	-435.2	3,484.1	0.00	0.00	0.00
15,800.0	90.12	359.58	12,336.5	3,559.5	-436.0	3,583.8	0.00	0.00	0.00
15,900.0	90.12	359.58	12,336.3	3,659.5	-436.7	3,683.5	0.00	0.00	0.00
16,000.0	90.12	359.58	12,336.1	3,759.5	-437.4	3,783.2	0.00	0.00	0.00
16,100.0	90.12	359.58	12,335.9	3,859.5	-438.2	3,882.9	0.00	0.00	0.00
16,200.0	90.12	359.58	12,335.7	3,959.5	-438.9	3,982.6	0.00	0.00	0.00
16,300.0	90.12	359.58	12,335.5	4,059.5	-439.6	4,082.3	0.00	0.00	0.00
16,400.0	90.12	359.58	12,335.2	4,159.5	-440.4	4,182.0	0.00	0.00	0.00
16,500.0	90.12	359.58	12,335.0	4,259.5	-441.1	4,281.6	0.00	0.00	0.00
16,600.0	90.12	359.58	12,334.8	4,359.5	-441.8	4,381.3	0.00	0.00	0.00
16,700.0	90.12	359.58	12,334.6	4,459.5	-442.6	4,481.0	0.00	0.00	0.00
16,800.0	90.12	359.58	12,334.4	4,559.5	-443.3	4,580.7	0.00	0.00	0.00
16,900.0	90.12	359.58	12,334.2	4,659.5	-444.1	4,680.4	0.00	0.00	0.00
17,000.0	90.12	359.58	12,333.9	4,759.5	-444.8	4,780.1	0.00	0.00	0.00
17,100.0	90.12	359.58	12,333.7	4,859.5	-445.5	4,879.8	0.00	0.00	0.00
17,200.0	90.12	359.58	12,333.5	4,959.5	-446.3	4,979.5	0.00	0.00	0.00
17,300.0	90.12	359.58	12,333.3	5,059.5	-447.0	5,079.2	0.00	0.00	0.00
17,400.0	90.12	359.58	12,333.1	5,159.5	-447.7	5,178.9	0.00	0.00	0.00
17,436.5	90.12	359.58	12,333.0	5,196.0	-448.0	5,215.3	0.00	0.00	0.00
BHL: 330' FNL & 990' FEL, Sec 10									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SL: 250' FNL & 580' FEL - plan hits target center - Point	0.00	0.00	0.0	0.0	0.0	382,758.00	741,754.00	32° 2' 59.695 N	103° 33' 11.001 W
KOP @ 11770' - plan hits target center - Point	0.00	0.00	11,770.0	0.0	0.0	382,758.00	741,754.00	32° 2' 59.695 N	103° 33' 11.001 W
BHL: 330' FNL & 990' F - plan hits target center - Point	0.00	0.00	12,333.0	5,196.0	-448.0	387,954.00	741,306.00	32° 3' 51.145 N	103° 33' 15.771 W
LP/FTP: 330' FSL & 99(- plan hits target center - Point	0.00	0.00	12,343.0	577.0	-414.0	383,335.00	741,340.00	32° 3' 5.434 N	103° 33' 15.763 W

13 3/8	surface csg in a		17 1/2	inch hole.		Design Factors		SURFACE	
Segment	#/ft	Grade		Coupling	Joint	Collapse	Burst	Length	Weight
"A"	48.00	h	40	ST&C	6.51	1.64	0.68	1,030	49,440
"B"								0	0
w/8.4#/g mud, 30min Sfc Csg Test psig:	762			Tail Cmt	does not	circ to sfc.	Totals:	1,030	49,440

Comparison of Proposed to Minimum Required Cement Volumes

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
17 1/2	0.6946	755	1445	770	88	8.80	1467	2M	1.56

Burst Frac Gradient(s) for Segment(s) A, B = , b All > 0.70, OK.

9 5/8	casing inside the		13 3/8			Design Factors		INTERMEDIATE	
Segment	#/ft	Grade		Coupling	Joint	Collapse	Burst	Length	Weight
"A"	36.00	J	55	LT&C	2.49	1.13	0.57	3,453	124,308
"B"	40.00	J	55	LT&C	8.98	1.13	0.64	940	37,600
"C"	40.00	n	80	LT&C	36.34	1.21	0.92	507	20,280
"D"								0	0
w/8.4#/g mud, 30min Sfc Csg Test psig:							Totals:	4,900	182,188

The cement volume(s) are intended to achieve a top of 0 ft from surface or a 1030 overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
12 1/4	0.3132	990	1943	1619	20	10.00	3504	5M	0.81

Burst Frac Gradient(s) for Segment(s): A, B, C, D = 1.02, 0.9, 1.17, d
All > 0.70, OK.

7	casing inside the		9 5/8			Design Factors		PRODUCTION	
Segment	#/ft	Grade		Coupling	Joint	Collapse	Burst	Length	Weight
"A"	26.00	hcp	110	LT&C	2.16	1.32	1.6	11,770	306,020
"B"	26.00	hcp	110	LT&C	6.10	1.18	1.6	730	18,980
w/8.4#/g mud, 30min Sfc Csg Test psig:	2,589						Totals:	12,500	325,000
B would be:					46.52	1.25	if it were a vertical wellbore.		

No Pilot Hole Planned

MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
12500	12343	12343	11770	90	9	12817

The cement volume(s) are intended to achieve a top of 4700 ft from surface or a 200 overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
8 3/4	0.1503	890	1511	1185	28	9.70	5620	10M	0.55
Setting Depths for D V Tool(s):			6308				sum of sx	Σ CuFt	Σ%excess
% excess cmt by stage:		25	33				920	1496	26

MASP is within 10% of 5000psig, need exrta equip?

Tail cmt

4 1/2	Liner w/top @		11770			Design Factors		LINER	
Segment	#/ft	Grade		Coupling	Joint	Collapse	Burst	Length	Weight
"A"	13.50	p	110	LT&C	3.28	1.21	1.49	1,047	14,135
"B"	13.50	p	110	LT&C	2.22	1.28	1.49	4,619	62,357
w/8.4#/g mud, 30min Sfc Csg Test psig:	2,715						Totals:	5,666	76,491
A Segment Design Factors would be:					4.42	1.28	if it were a vertical wellbore.		

No Pilot Hole Planned

MTD	Max VTD	Csg VD	Curve KOP	Dogleg°	Severity°	MEOC
17436	12343	12343	11770	90	9	12817

The cement volume(s) are intended to achieve a top of 11770 ft from surface or a 730 overlap.

Hole Size	Annular Volume	1 Stage Cmt Sx	1 Stage CuFt Cmt	Min Cu Ft	1 Stage % Excess	Drilling Mud Wt	Calc MASP	Req'd BOPE	Min Dist Hole-Cplg
6 1/8	0.0942	250	743	573	30	13.00			0.56

Class 'H' tail cmt yld > 1.20 Capitan Reef est top XXXX. MASP is within 10% of 5000psig, need exrta equip?

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Mewbourne Oil Company
LEASE NO.:	NMNM002965A
WELL NAME & NO.:	3H- Salado Draw 10 W0PA Federal
SURFACE HOLE FOOTAGE:	250'/N & 580'/E
BOTTOM HOLE FOOTAGE	330'/N & 330'/W
LOCATION:	Section 15, T. 26 S., R. 33 E., NMPM
COUNTY:	Lea County, New Mexico

A. CASING

All previous COAs still apply except for the following:

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) for Water Basin:
After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Medium Cave/Karst
Possibility of water flows in the Salado and Castile.
Possibility of lost circulation in the Salado and Delaware.

1. The **13-3/8** inch surface casing shall be set at approximately **1030** feet and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt.**

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with

surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Formation below the 13 3/8 inch shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

2. The minimum required fill of cement behind the **9 5/8** inch intermediate is:

☒ Cement to surface. If cement does not circulate see A.1.a, c-d above. **Excess calculates to 20% - Additional cement might be required.**

Formation below the 9 5/8 inch shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

If cement does not circulate to surface on the intermediate casing, the cement on the production casing must come to surface.

3. The minimum required fill of cement behind the **7** inch production casing is:

Operator has proposed DV tool at depth of 6308', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.

a. First stage to DV tool:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.

b. Second stage above DV tool:

☒ Cement as proposed. Operator shall provide method of verification.

4. The minimum required fill of cement behind the **4 1/2** inch production liner is:

☒ Cement as proposed. Operator shall provide method of verification.

5. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **surface** casing shoe shall be **10,000 (10M)** psi.

10M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

   a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater.

However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

d. The results of the test shall be reported to the appropriate BLM office.

e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

TMAK 05042017